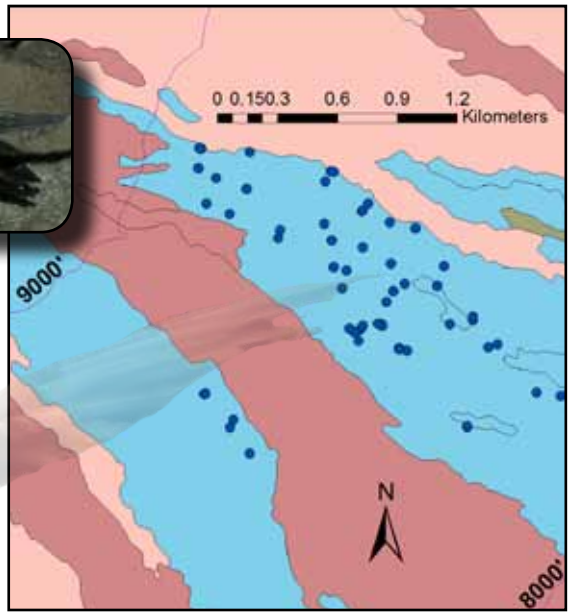
Seabird Monitoring

Network Parks Where Resource Will Be Monitored

- Hawai'i Volcanoes National Park (HAVO)
- Haleakalā National Park (HALE)
- Kalaupapa National Historical Park (KALA)
- National Park of American Samoa (NPSA)



Importance: Ecological Indicators

Seabirds are a conspicuous component of both marine and oceanic island ecosystems and perform important functions within these ecosystems. As predators at the top of the food chain, they cycle nutrients derived from marine sources to terrestrial environments, primarily through the deposition of guano. Today, anthropogenic stressors threaten seabird populations with declines in abundance, density, and distribution. Prior to human colonization, seabirds nested widely in enormous numbers and great diversity on many Pacific islands. However, the group is now generally marked by precipitous declines and extirpations. Existing colonies are often remnants in dire need of protection, active monitoring, and management.

Long-Term Monitoring

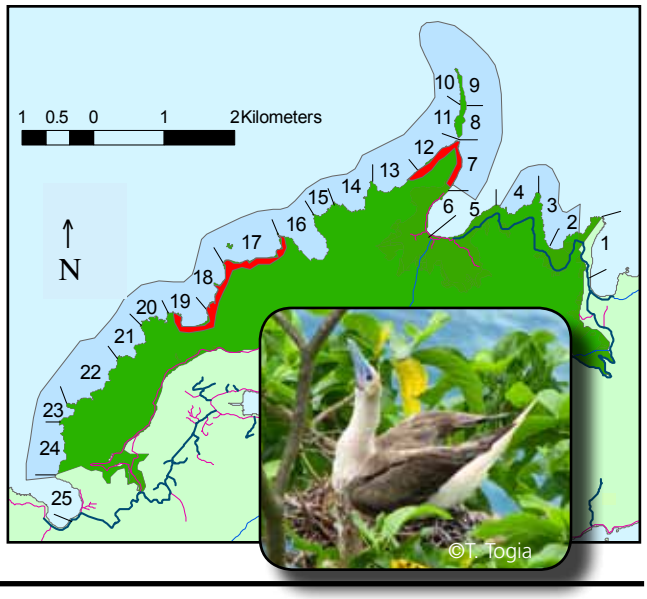
Rare, threatened, and endangered species are of primary concern to the PACN, and the only federally listed seabirds in the network are the endangered Hawaiian petrel, or 'ua'u, and the threatened Newell's shearwater, or 'a'o. Hawaii's largest breeding 'ua'u colony is at HALE, with a second smaller population at HAVO. Both the 'ua'u and 'a'o are suspected to breed in KALA. Seabird monitoring in Hawaii will focus on these two species. NPSA has the PACN's most diverse seabird assemblage; about 20 species. A disproportionate number of birds have been found along the coastline of the park's Tutuila unit, in contrast to coastline outside the park. Seabird monitoring at NPSA will therefore focus on the coastal colonies found in this park unit. Due to the importance of these national parks to seabirds, periodic and consistent monitoring is recommended.

Top: Top: A Hawaiian petrel (*Pterodroma sandwichensis*) outside its burrow. Above: At HAVO, the majority of petrels select burrows (blue dots) in pahoehoe lava flows ranging in age from 1500 to 5000 years. The pink and salmon colored flows are younger and less attractive as burrow locations. Approximately 50 active burrows have been located in this park.

Below: Sample units along NPSA (Tutuila Island) shoreline. Red polygons identify areas where red-footed booby (*Sula sula*) colonies have been found. Bottom: Red-footed booby on a nest.

Monitoring Objectives

- Determine current status and long-term trends in Hawaiian petrel colony density, distribution, and fledgling success, and how these are affected by predator control at HAVO and HALE (priority objective)
- Determine whether the Hawaiian petrel and Newell's shearwater are present in KALA
- Determine long-term trends in relative abundance and distribution of common, low-elevation seabirds at NPSA



Management Applications

- Provide data to support park management decisions
- Identify colonies with negative trends in reproduction and assess needs for enhanced predator control
- Improve understanding of park seabird ecology